

Claims

1. Method for functionalizing polysaccharides using a source of free radicals which forms stable radicals on the polysaccharide structure and wherein the formed radical reacts with a functionalized olefin, which method comprises two steps: a first step, wherein the free radical on the polysaccharide chain is formed, and a second step, wherein said radical reacts with the olefin in the absence of the radical source, characterized in that the polysaccharide is in the form of a fiber.
2. Method according to claim 1 wherein the source of free radicals is a chemical source or a physical source.
3. Method according to claim 2 wherein the physical source is selected from cold plasma and electron beam radiation, and the chemical source is Fenton's reagent.
4. Method according to claims 1-3 wherein the polysaccharide is selected from the group consisting of flax, cellulose, viscose, cotton.
5. Method according to claim 4 wherein the polysaccharide is used together with one or more natural or synthetic fibers.
6. Method according to claim 5 wherein the natural or synthetic fibers are selected from silk, polyamide, polyester, polyacrylate and polyolefin.
7. Method according to claims 1-6 wherein in the first step the radicals are generated by electron beam and the radiation dose is comprised between 10 and 400 kGy.
8. Method according to claim 7 wherein the radiation dose is comprised between 20 and 200 kGy.
9. Method according to claims 1-8 wherein the stable radicals have a half-life of about 1 day.
10. Polysaccharides obtainable by the method of claims 1-9.
11. Polysaccharides according to claim 10 wherein the ratio mol olefin/eq anhydrous glucose is comprised between 10^{-3} and 2, preferably between 10^{-2} and 1.
12. Process for the preparation of functionalised polysaccharides or polymer fibers which process comprises:
 - a) forming stable radicals on the polysaccharide from a free radical source; and
 - b) reacting in the absence of the free radical source an olefin containing a functional group with the stable radicals on the polysaccharide.